THE WILLIAM L. BRYANT FOUNDATION
American Studies Report Number Seven

ARCHAEOLOGICAL INVESTIGATIONS AT THE ROSS HAMMOCK SITE, FLORIDA

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PREFACE

Vast quantities of evidence of prehistoric life all across the country—evidence which goes back many thousands of years—is being destroyed by construction due to population explosion, greater suburbanization and increased industrialization. Despite the best efforts of Federal and State organizations, local societies and civic minded individuals, this destruction proceeds at an appalling rate.

It is of great merit, therefore, that Ripley P. and Adelaide K. Bullen and William J. Bryant undertook the investigations of the Ross Hammock site described in the following pages. It is also to their credit and to that of the William L. Bryant Foundation that the results of these investigations have been published and made available to the professional and lay archeologist alike.

From this report it becomes evident that the Indian River Lagoon was heavily inhabited for several centuries around the time of Christ and that the occupants built rather elaborate burial mounds. Although these mounds have seemingly been extensively damaged by treasure seekers and pothunters for years, the careful excavations of the Bullens and Bryant revealed a good bit of scientific data still inherent in the Ross Hammock mound. It is to be all the more regretted, therefore, that other mounds of this same period have totally disappeared.

Fortunately, the Ross Hammock mound is now part of the National Aeronautics and Space Administration area at Cape Kennedy and thus comes under the protection of the Federal Antiquities Act. As the authors state, it is hoped that at some future date further work can be done at this site as well as at some of the other remaining Indian River Lagoon sites. We feel that the investigations here have set an excellent example and hope that others may follow in their footsteps.

John M. Corbett
Chief Archeologist
National Park Service

CONTENTS

Preface iii
Introduction 1
Excavations 2
    Midden Tests 2
        Midden Test I 4
        Midden Test II 8
        Discussion of Midden Tests 10
    Excavations at Mound 1 13
    Discussion of Mound 1 18
    Excavations at Mound 2 21
    Discussion of Mound 2 22
    Other Tests 23
    Historical Foundation 23
Conclusions 25
References Cited 28

ILLUSTRATIONS

Plate I. Trench A during excavation vi

Plate II. Part of Mound 1, March 26, 1963 4

Plate III. Excavating Test I 5

Plate IV. Sherds from midden and burial mound 12

Plate V. Miniature vessels during excavation 16

Plate VI. Four touching skulls, partially excavated . . . 17

Plate VII. Specimens from Mound 1 19

Plate VIII. Salt works foundation after clearing 24

Figure 1. Sketch map of Ross Hammock site 3

Figure 2. Profile from Midden Test I 6

Figure 3. Section from Midden Test II 7

Figure 4. Profile from Mound 1 14-15

Table 1. Vertical Distribution of Pottery, Midden Test I . . 8

Table 2. Vertical Distribution of Pottery, Midden Test II . . 9

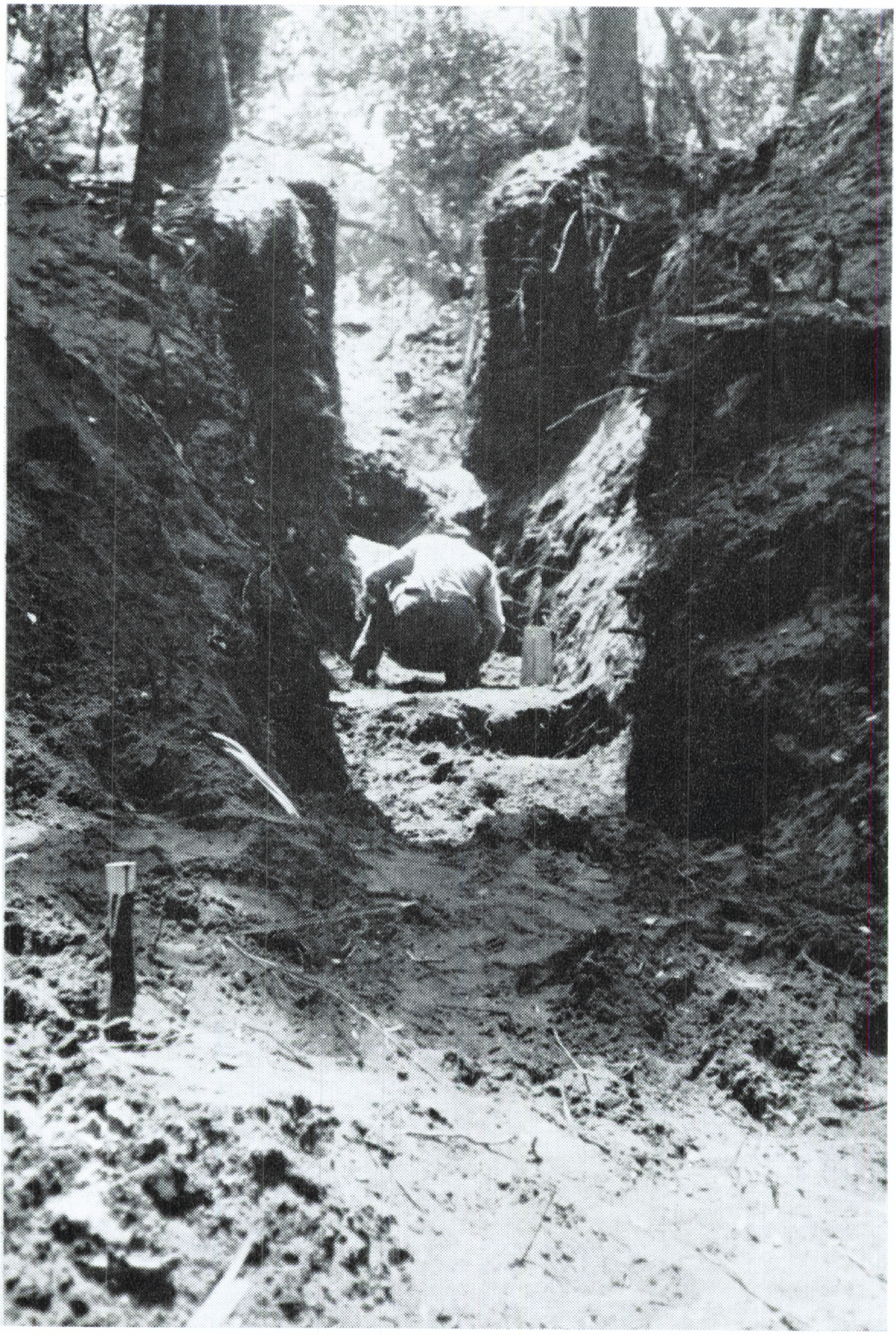

Plate I. Trench A during excavation.

INTRODUCTION

The Ross Hammock site, located along the mainland side of the Intracoastal Waterway a little southeast of Oak Hill, Volusia County, Florida, consists of a complex of two very large sand burial mounds and a fairly extensive, but not extremely large, shell midden village area (Fig. 1). The midden is listed as site Vo-130 and the larger burial mound as site Vo-131 in Goggin's (1952: 95) survey of the St. Johns River region which does not note the second burial mound. The site is also mentioned by Le Baron (1884: 782), Douglas (1885: 78-79), and Butler (1917: 104). None of these sources give any archaeological information about the site.

In 1961 we visited the Ross Hammock site with Mr. Warren Williams of Oak Hill as guide and found the main burial mound (Fig. 1, *Mound 1*) somewhat pitted by pot-hunters while an old treasure seeker's hole occupied the top of the second burial mound (Fig. 1, *Mound 2*). The midden was undisturbed except at its southern end where it was cut by a drainage ditch. The extreme northern end of this midden had been used as the site of a salt water evaporation station during Civil War (?) times (Fig. 1, *H*).

There is another site a little north of Oak Hill which also has a very large, but unexcavated, burial mound while other sites in the neighborhood are known with much smaller sand burial mounds. Most of the small burial mounds in the area have been destroyed. The archaeological potential of the Ross Hammock site was obvious and we decided to make tests to evaluate its possibilities.

We scheduled this work for 1962 but it was not until March 1963 that we returned to Ross Hammock with a small crew to make the tests. Mr. R. B. Gautier, Jr., of Worley, Gautier and Patterson, Miami, Florida, one of the trustees then owning Ross Hammock, very kindly granted permission for this investigation. Field work was a joint enterprise of the William L. Bryant Foundation and the Florida State Museum, and specimens have been divided between the two institutions.

During the intervening two years since our first visit to the site, there had been a great deal of uncontrolled digging in the main burial ground. Some large trees had been uprooted and holes, or the dirt from them, virtually completely covered all the higher parts of this tumulus (Pl. II). Beside many of these holes we found human bones.

A short time after our field work, the Ross Hammock site was incorporated into the enlarged National Aeronautics and Space Administration's area so that the site is now under government ownership. A preliminary resumé of the results of our work was supplied NASA and National Park Service officials and other interested people in June 1963 for evaluation purposes. At present the site is being preserved by the government as it is well within the northern boundary of the John F. Kennedy Space Center. Eventually its full archaeological significance will be revealed.

EXCAVATIONS

We worked first at Mound 1. Later, when more labor became available, we started stratigraphic tests in the village midden and, finally, briefly tested Mound 2 and examined the salt water evaporation station. Test holes also located buried shell deposits to the east of Mound 2 (Fig. 1, *B*) but they were not investigated further.

For this report it seems best to describe the midden tests first, so as to establish the chronological range and position of the site, and then to cover the burial mound explorations. The historical site or salt works will be covered last. Discussion of specimens and interpretation of the results of work at each excavation unit follows in each case so that the final conclusions are essentially summations.

Midden Tests

We dug two stratigraphic tests in the Ross Hammock village midden, one near our trench in the main burial mound and the

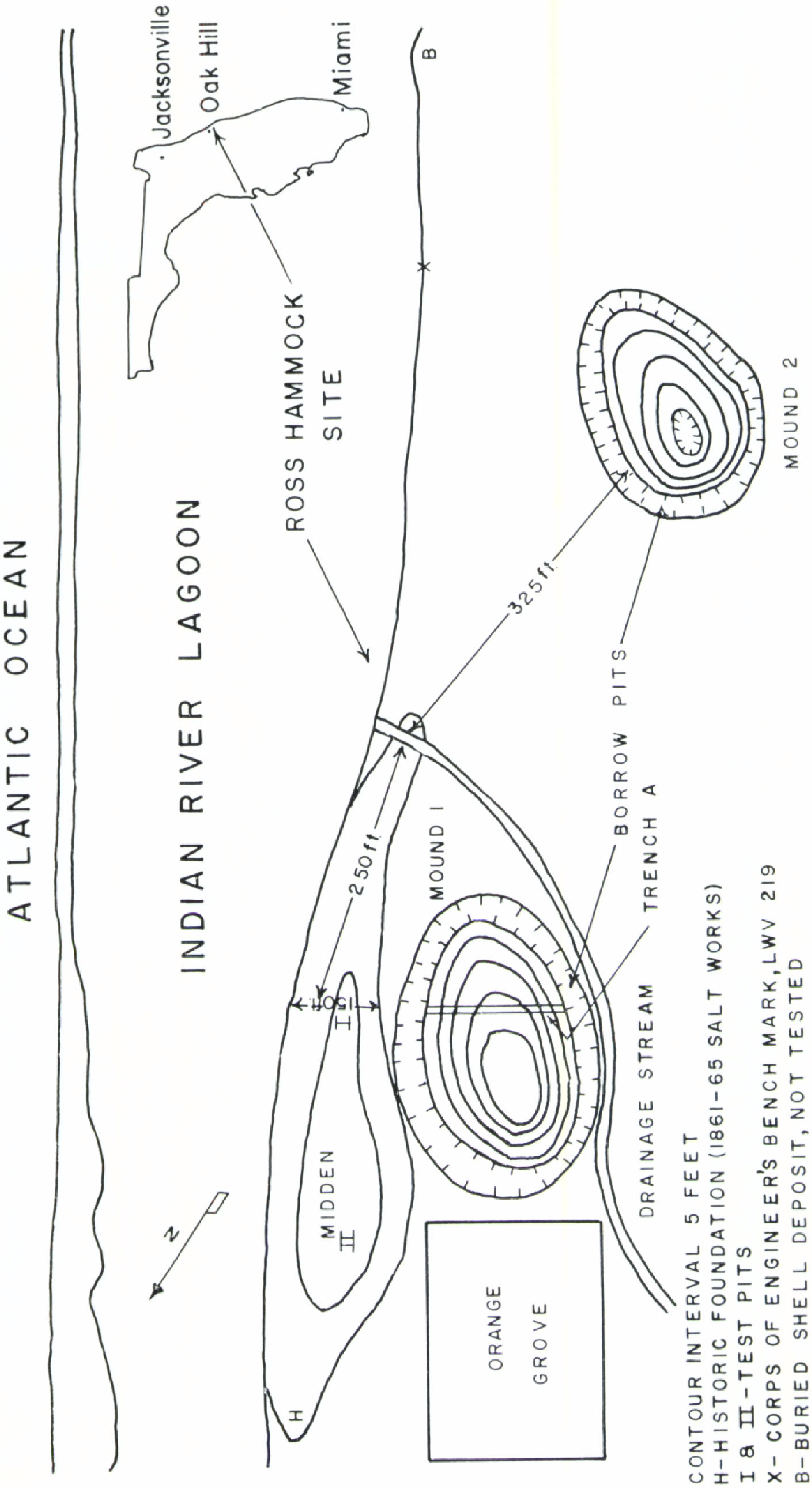
ATLANTIC OCEAN
INDIAN RIVER LAGOON
ROSS HAMMOCK SITE
Jacksonville
Oak Hill
Miami
B
N
MIDDEN II
I
150 ft
250 ft
MOUND I
325 ft
MOUND 2
BORROW PITS
TRENCH A
DRAINAGE STREAM
ORANGE GROVE
H
CONTOUR INTERVAL 5 FEET
H-HISTORIC FOUNDATION (1861-65 SALT WORKS)
I & II-TEST PITS
X- CORPS OF ENGINEER'S BENCH MARK, LWV 219
B-BURIED SHELL DEPOSIT, NOT TESTED

Fig.1 Sketch map of Ross Hammock site.

Plate II. Part of Mound 1, March 26, 1963.

other in the highest part of the midden further to the north (Fig. 1, *I-II*). Both were 5 by 10 feet in area and excavated by arbitrary 6-inch levels. The vertical distribution of pottery from these tests is presented in Tables 1-2 by 12-inch levels to save space. When important, the smaller increments are mentioned in the text.

Pottery type definitions and the classification of other artifacts used here will be found in Goggin's (1952: 97-122) *Time and Space Perspective in Northern St. Johns Archeology*. The exception, Belle Glade Plain, is defined in Wiley's (1949b) *Excavations in Southeast Florida*.

MIDDEN TEST I

The north profile of Midden Test I will be found in Fig. 2. As indicated, the surface sloped downward towards the Intracoastal Waterway (Indian River Lagoon) to the east. The slopes of the surfaces of the various shell layers, above a depth of 4 feet, show that, as Indians discarded shells and other debris, the midden grew both upwards and away from the water. The truncation of these layers by the present surface may indicate removal of midden material by Indians, possibly for use as builder's fill. The more hori-

Plate III. Excavating Test I.

zontal lowest zone was deposited on what appeared to be an old beach surface or the remains of a small sand dune.

Our field notes indicate that conch (*Busycon* sp.) and scallop shell fragments were relatively rare in these deposits which were dominated by *Venus* clam and oyster shells plus some shells of a smaller clam (Pl. III). As suggested in Fig. 2, the top 2 feet produced many clam shells; some oyster shells were mixed with them. Between depths of 3 and 4 feet, however, oysters were the most common shell present. Below that depth, clam shells again became dominant.

This shift in dominance from clams to oysters and back to clams must, it would seem, reflect ecological changes in nearby waters. A radiocarbon sample (see below) was taken from the black zone, which sloped upwards between depths of 3.5 and 2.5 feet, a little above the top of the "large oyster" shell zone. It would seem to date the shift from oysters back to clams as having occurred around A.D. 950-1000. Examination of the vertical distribution of pottery for Test I (Table 1) does not suggest any concomitant cultural change at this time.

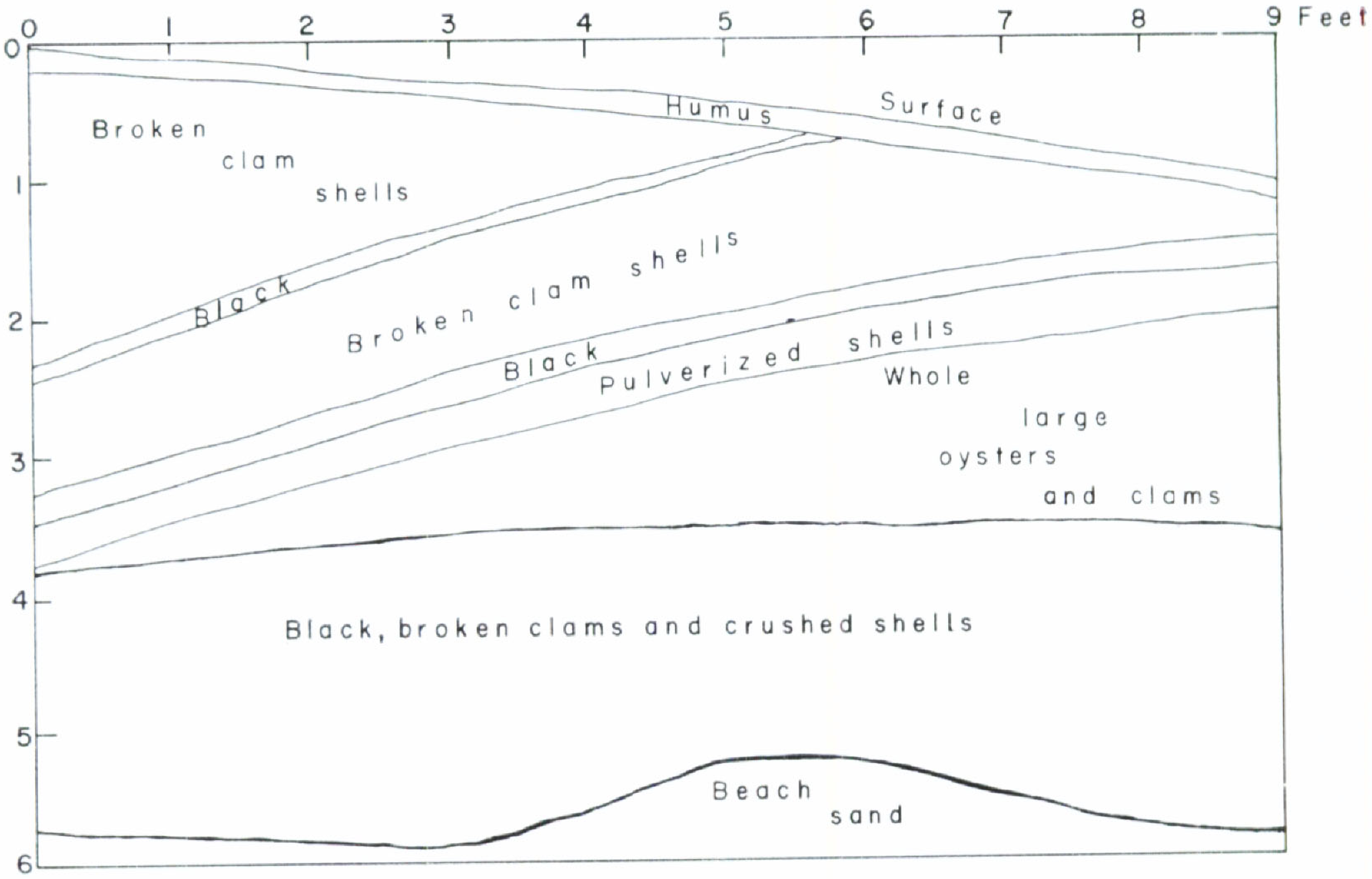
0
1
2
3
4
5
6
7
8
9 Feet
0
1
2
3
4
5
6
Humus
Surface
Broken clam shells
Black
Broken clam shells
Black
Pulverized shells
Whole large oysters and clams
Black, broken clams and crushed shells
Beach sand

Fig. 2. Profile from Midden Test I.

As shown in Table 1, check-stamped pottery was limited to the highest foot. More specifically, 28 of these sherds were in the first 6-inch and only 2 in the second 6-inch level. Check markings on these sherds were small and averaged 8 to the inch. Lower levels contained only St. Johns Plain pottery plus a sprinkling of sand-tempered plain sherds.

The significance of the Belle Glade Plain sherd between depths of 2 and 3 feet is questionable because of the sloping "horizon" lines shown in the profile (Fig. 2). It was actually found between depths of 26 and 30 inches and may not be very much older than the two other Belle Glade Plain sherds which were in the highest 6-inch level. All three of these sherds represent importations from the Lake Okeechobee region to the south.

Other specimens include a sandstone grinding stone fragment from the first 6-inch level. A bone point, a bone awl fragment, a broken shell columella tool, and a piece of cut *Busycon* shell were found in the 2- to 3-foot level.

As mentioned above, we took a sample of charcoal from between depths of 36 and 42 inches for radiocarbon analysis. Dating was done by Isotopes, Inc., and the result (Sample I-1663) was

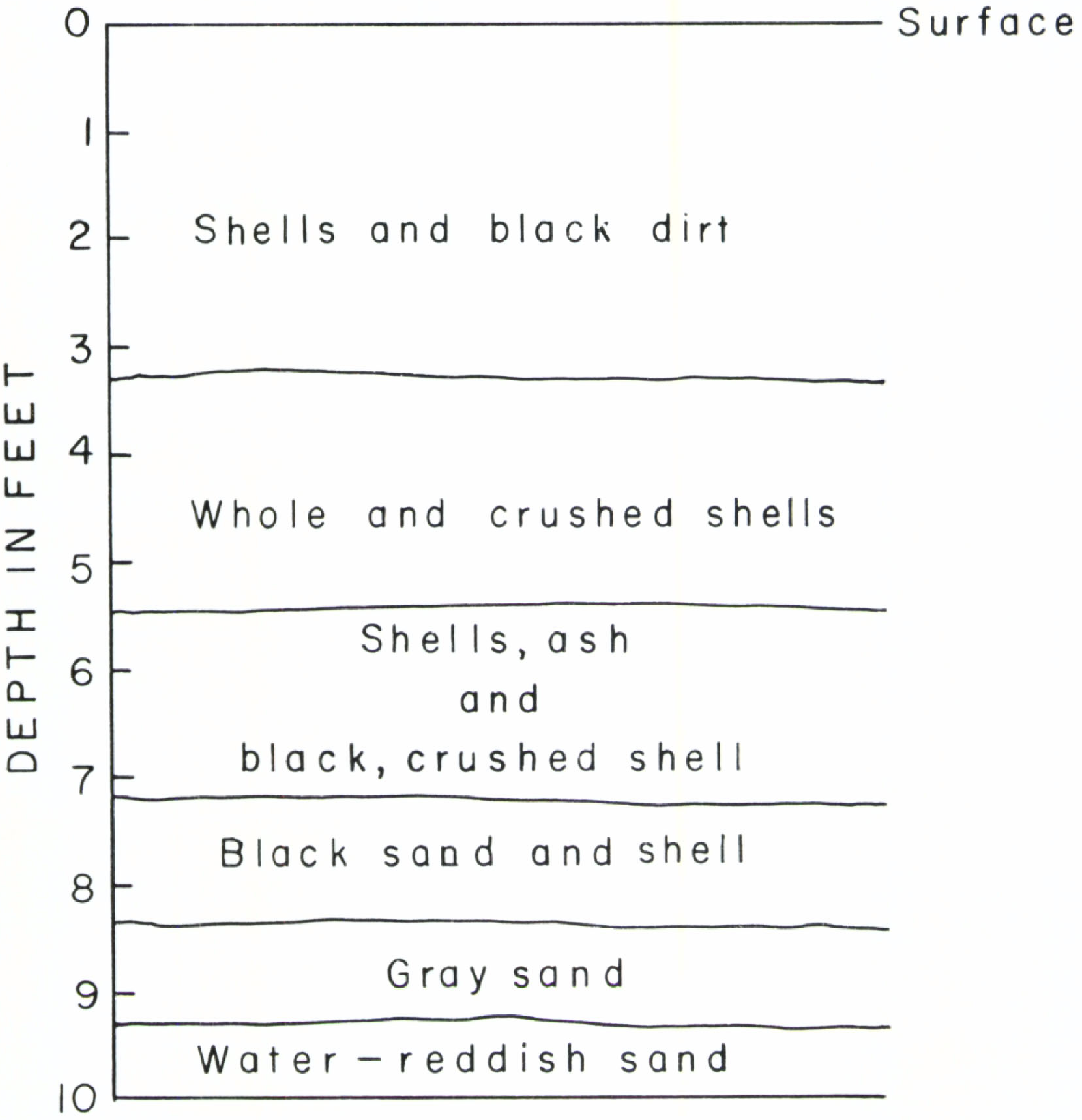
0
1
2
3
4
5
6
7
8
9
10
DEPTH IN FEET
Surface
Shells and black dirt
Whole and crushed shells
Shells, ash and black, crushed shell
Black sand and shell
Gray sand
Water – reddish sand

Fig. 3. Section from Midden Test II.

955 ± 110 years before present or about A.D. 995. As all the deposits below a depth of 12 inches contained no check-stamped pottery, they may be considered, by definition, as belonging to the St. Johns I period (Goggin 1952: 53). Elsewhere Bullen and Sleight (1960: 19, 35-36) have presented data indicating that the shift from the St. Johns I to St. Johns II period occurred about A.D. 800-850. The sloping depositional lines shown in the profile from Test I (Fig. 2) suggest a little caution in accepting the A.D. 995 date as necessarily dating St. Johns I deposits. This point will be referred to again after the description of the work at Test II.

Table 1

VERTICAL DISTRIBUTION OF POTTERY, MIDDEN TEST I

Typology	Depths in feet						
	0-1	1-2	2-3	3-4	4-5	5-5.5	Totals
Belle Glade Plain	2		1				3
shell-tempered plain			2				2
sand-tempered plain	28	8	3	3		1	43
miscellaneous incised			1				1
St. Johns Check Stamped	30						30
St. Johns Plain	347	263	372	101	65	8	1156
Totals	407	271	379	104	65	9	1235

MIDDEN TEST II

The midden deposit in Test II was simpler than that in Test I in that the various shell deposits were deposited in horizontal zones (Fig. 3). Our field notes recorded more oyster than clam shells in the highest foot but more clam than oyster shells below a depth of 2 feet. As indicated in Fig. 3, a large amount of black dirt and sand was mixed with these shells; many of them were crushed, presumedly by trampling. Test II was dug in an area of intense occupation.

The cultural deposits of Test II were about 2 feet thicker than at Test I and, at a depth of 7.5 feet, rested upon a zone of black sand and shell. This zone must represent the original surface of the ground at the time of first occupation. The black color may be in part old humus but probably is chiefly the result of charcoal grains carried downward by percolating water. The underlying sterile, gray and reddish sand zones are undoubtedly the results of normal soil-profile formation processes.

In Test II, as in Test I, Belle Glade Plain and St. Johns Check Stamped sherds were limited almost entirely to the highest 6-inch level where 14 of the 16 check-stamped sherds, shown for the highest foot in Table 2, were found. Also as for Test I, check imprints were small in size (Pl. IV, *a-b*), varying from 6 to 9 to the inch. We discovered two uniquely decorated sherds (Pl. IV, *c-d*) in the second 6-inch level, between depths of 6 and 12 inches. These

Table 2

VERTICAL DISTRIBUTION OF POTTERY, MIDDEN TEST II

Typology	Depths in feet								Totals
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-7.5	
Belle Glade Plain	3								3
sand-tempered plain	13	8	1	1				4	27
sand-tempered red	1		1						2
unique incised	1								1
unique inc. and punctated	1								1
St. Johns Check Stamped	16	1							17
Dunns Creek Red	1		5	4					10
St. Johns Simple Stamped								1	1
St. Johns Plain	302	165	118	45	9	56	36	6	737
Totals	338	174	125	50	9	56	36	11	799

sherds, while made of St. Johns paste, bear decoration similar to that found in the late Weeden Island period of the Florida Gulf Coast.

Below, between depths of 2 and 4 feet, we found Dunns Creek Red sherds (Pl. IV, *e*) in substantial quantities (Table 2). Greater depths produced only St. Johns Plain sherds plus a St. Johns Simple Stamped and 4 sand-tempered plain sherds in the lowest level below a depth of 7 feet.

There was a variation with depth in the thickness of St. Johns Plain pottery. Below a depth of 3 feet, many of these sherds were noticeably thick, exhibited very uneven surfaces, and were a little softer than average. Such pottery has long been considered a trait of very early St. Johns I times but this is the first good stratigraphic evidence to support this theory. The St. Johns Simple Stamped sherd in the lowest level is, apparently, a copy in chalky paste of Deptford Simple Stamped pottery. It, as well as the relatively large number of sand-tempered sherds in the same level, strongly suggest Deptford influences at the Ross Hammock site.

Other specimens from Test II include 3 sandstone grinding stone fragments in the highest foot, 4 more between depths of 3 and 5 feet, a *Busycon* tool at 4 feet, 3 columella tools between 3.5 and 6.5 feet, and a columella hammer in the lowest level. Unfortunately, most of these tools were broken.

A sample of charcoal was collected at a depth of 5 feet in Test II for radiocarbon dating. The result (Isotopes, Inc., Sample No. I-1664) was 1680 ± 200 years before present or about A.D. 270. At present this is the earliest radiocarbon date available for the St. Johns I period.

The depth from which this radiocarbon sample came, 5 feet, was substantially below the Dunns Creek Red levels and substantially above the Deptford-influenced levels of Test II (Table 2). Current archaeological opinion would start the St. Johns I period well before the time of Christ. The date and location of this sample, 2 feet above the Deptford-influenced basal level of Test II, agrees well with current theory in this respect. Both the date and the stratigraphic evidence would imply that Dunns Creek Red pottery may prove to be restricted to the St. Johns Ib period and not to have been made earlier as has been previously thought (Goggin 1952: 48-50).

Discussion of Midden Tests

The St. Johns II archaeological period is distinguished from the St. Johns I period by the presence of St. Johns Check Stamped pottery. In the vicinity of the Ross Hammock site, excavations at two sites have disclosed St. Johns II deposits overlying those of the St. Johns I period. In both cases analyses of check stamp imprints were made.

At Green Mound, 25 miles to the north, the lowest 5 feet of the St. Johns II deposits produced check-stamped pottery with checks averaging 6 to the inch (Bullen and Sleigh 1960: 13, 35). At the Jungerman site, 30 miles to the south, the three lowest check-stamped levels produced sherds with 4 to 6 checks to the inch. The only substantial amount of this pottery with 8 checks to the inch was in the highest or surface zone (Jordan 1963: 12). Checks from Castle Windy, 5 miles to the north, which contained only middle-to-late as opposed to early St. Johns II deposits, were noticeably small on the average, 4 to 9 to the inch (Bullen and Sleight 1959: 25).

The small size of the check markings on pottery from the Ross Hammock midden suggests the St. Johns Check Stamped sherds found there are not attributable to the earliest phase of the St. Johns II period. The reason for the absence of a relatively early, large check-stamped period is not evident. Perhaps the occupants of the site did not adopt check-stamping as early as did their neighbors. Perhaps an hiatus occurred during very early St. Johns II times.

Before leaving the question of check-stamping, we should point out that Belle Glade Plain pottery, typical of the Lake Okeechobee region of south Florida, was found at the Ross Hammock and Jungerman sites (Jordan 1963: 7) but not at Green Mound or Castle Windy farther to the north. In both cases it was found in the same levels as St. Johns Check Stamped sherds and not, significantly, otherwise. Apparently the Ross Hammock site is located at about the extreme northern edge of influences from the Belle Glade culture area and such influences did not reach the Cape Kennedy region until St. Johns II times or post-A.D. 800.

Stratigraphic tests in the village midden at the Ross Hammock site show it to have been inhabited during the St. Johns I and II periods. Slightly modifying Goggin's (1952: 47-54) archaeological period formulations, we would interpret these tests to indicate occupation started during the St. Johns Ia Early period around or just before the time of Christ. At this time Deptford influences were important in northeastern Florida as evidenced by tetrapodal and simple stamped vessels made of chalky paste. The first burial mounds were probably built during this period. The lowest levels of Test II would belong to this St. Johns Ia Early period.

The St. Johns Ia Late period is represented by the 3- to 5-foot levels of Test I and the 4- to 6-foot levels of Test II (Tables 1-2). This time period is marked by the presence of St. Johns Plain pottery, some of which is rather thick and a little softer than the average for that type, and the absence of copies in chalky paste of Deptford ceramic traits. Dunns Creek Red vessels may have been made at this time but we would suggest that red-painted pottery did not become prominent until the next period.

The St. Johns Ib period, which includes the 1- to 3-foot levels of Test I and the 2- to 4-foot levels of Test II, equates with the Weeden Island I period of the Florida Gulf Coast. Dunns Creek

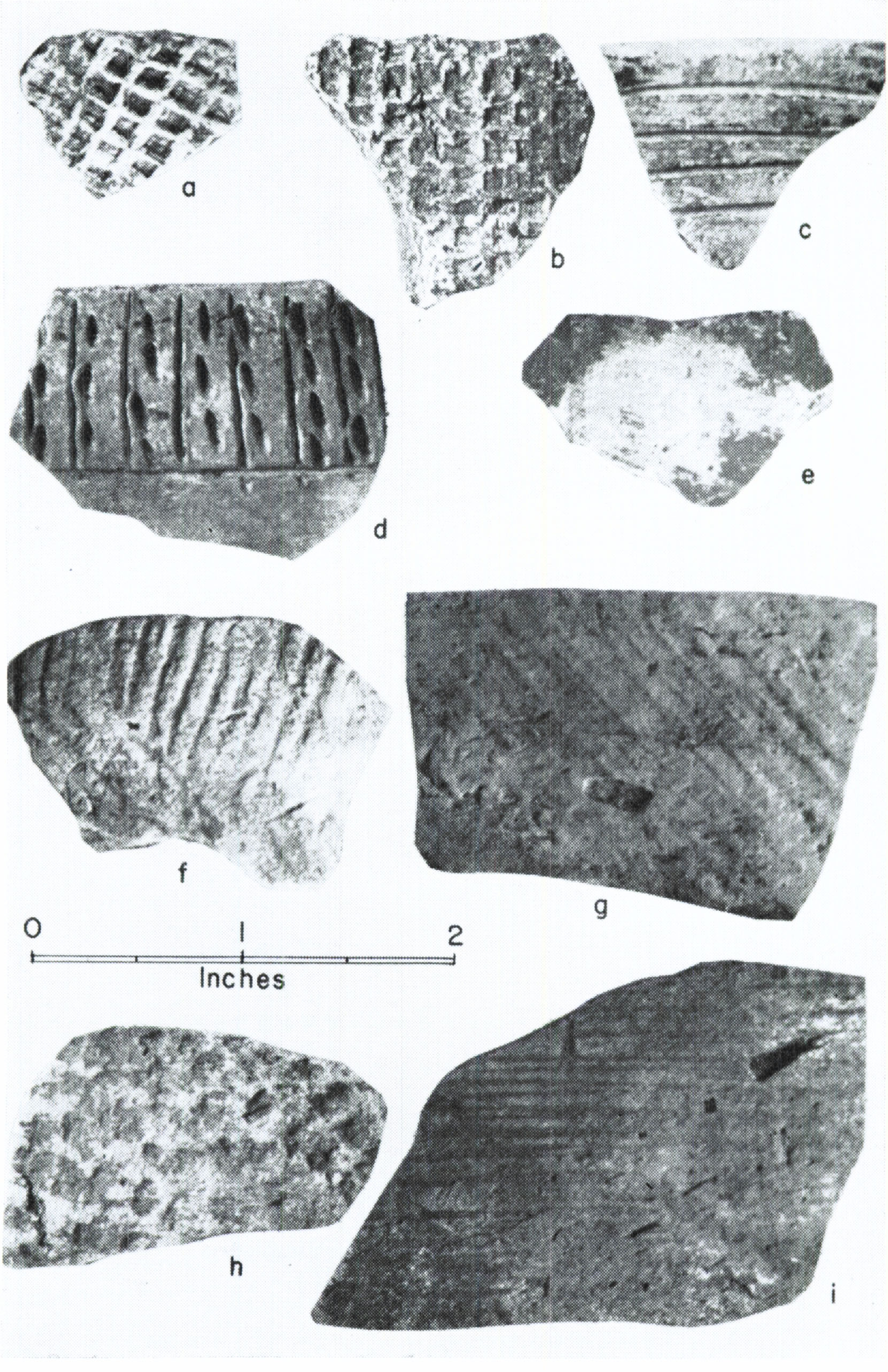

Plate IV. Sherds from midden and burial mound.

a-b, St. Johns Check Stamped; *c*, unique incised; *d*, unique incised and punctated; *e*, Dunns Creek Red; *f-g*, *i*, St. Johns Simple Stamped; *h*, St. Johns Check Stamped (bold checks). *a-e*, from midden; *f-g*, from burial mound fill; *h-i*, from basal black zone below burial mound.

Red pottery, as well as St. Johns Plain, is common in the St. Johns area (northeastern Florida) as well as in the burial mounds of central Florida. Both types, particularly Dunns Creek Red, are found in Weeden Island burial mounds along the Gulf coast. If our radiocarbon date for the 5-foot depth in Test II is correct, the St. Johns Ib period, and by extension the Weeden Island I period, started around A.D. 300.

We would correlate the unique incised pottery (Pl. IV, *c-d*) from the 6- to 12-inch level of Test II (Table 2) with the Weeden Island II time period of the Gulf coast. Others might correlate these sherds with the Weeden Island I period, but we feel that the sherd with parallel incised lines (Pl. IV, *c*) is a copy of St. Petersburg Incised (Willey 1949a: 442), a very late Weeden Island pottery type, and that the execution, as well as the design, of the incised and punctated sherd (Pl. IV, *d*) is almost as apt to be Safety Harbor or Englewood influenced as Weeden Island influenced. Under this period placement, St. Johns IIa, we would expect more than 2 St. Johns Check Stamped sherds to have been associated with these incised sherds in the 6- to 12-inch level. As suggested earlier, there may have been a lag in the introduction of check-stamping to the Ross Hammock site. Perhaps a test in a little different location would disclose more check-stamped pottery in this level. Certainly the highest 6-inch levels of both tests, with abundant examples of St. Johns Check Stamped pottery, were deposited during the St. Johns II period, sometime after A.D. 800.

Excavations at Mound 1

Our main excavation in Mound 1 consisted of a 5-foot wide trench (Pl. I) which cut across the tumulus a little southeast of its center (Fig. 1, *Trench A*). The need to avoid large trees and to by-pass, as much as possible, pot-hunters' holes determined the actual location of Trench A. As it developed, a large disturbance just to the northwest of the northeastern part of Trench A proved to be considerably more extensive than we had guessed from surface indications. As our trench deepened at this point, the narrow wall between it and this disturbance presented a dangerous situation. Fortunately, the final collapse of that side of Trench A did not occur until the eve of our last day at the site.

Mound 1 was built of sand and dirt much of which came from the wide and fairly deep moat-like borrow pit which surrounded it (Fig. 1). We noted some evidence of basket-loading in the walls of Trench A. Mixed with the sand fill in varying amounts was what appeared to be muck or humic material. Also included in this matrix were occasional sherds, shells, and other midden materials. Shells were usually those of *Venus* clams but conch, oyster, and scallop shells were also present. Rather deep in the mound, southeast of the central part, we found two sloping layers of midden shell (Fig. 4, below *15N*). At the bottom, resting on a mottled zone which may represent the original surface of the ground, was a layer of black dirt and shells which probably formed a premound midden.

The locations of the various layers and of the burials we encountered are indicated on the southeast profile of Trench A (Fig. 4). The sloping zones of shells and of light-colored sand clearly show this mound to have been built by accretion. In Trench A, burials concentrated in the northeastern central part of the mound. It may be pointed out that this is on the side of the mound nearest the midden or village area and, hence, the likely location for interments.

In Figure 4, the locations of all burials found in Trench A have been projected onto the southeast profile. The concentration of burials below Stk. 10N was extremely great and the bones of some burials so intermingled that individuals could not be accurately separated from each other (Pl. VI). However, the projection has made the concentration appear a little greater than was actually the case.

Examination of Figure 4 will disclose two horizontal deposits near the center of our trench, one of fine crushed shell and the other of coarse clear, light-colored sand. The former rested upon the latter and both had sloping northeastern edges. This slope was matched by that of an overriding sloping shell layer (Fig. 4, below *10N and 15N*). A lower shell layer sloped upwards which, if it became horizontal, would form a floor for the fine crushed shell and coarse sand deposits just mentioned.

This situation is not common in Florida burial mounds or at least has not been mentioned by previous excavators. These deposits—their composition, shape, and careful deposition—clearly

NORTHEAST
60N
50N
40N
35N
30N
25N
20N
15N
10N
5N
0
5S
10S
15S
20S
25S
30
0
5
10
15
20
25
Mottled
Mottled
Blackish brown sand, occasional shell
S-S-S-S-S-S
Black sand
Brown
S S S S S S S S S S
Mottled
Blackish brown sand, some shell
S-S-S-S-S
P
Blackish sand some shell
Fine crushed shell
Coarse clean light-colored sand
Light colored sand
Light "dry" sand
S S S
O-BURIALS
S-SHELLS
P-MINIATURE CLAY VESSELS
0
5
FEET
Top of black muck filling surrounding borrow pit
Gray leached sand
Yellowish sand
Mottled zone (original surface)
Black dirt and shell (premound midden)

Fig. 4. Profile from Mound 1.

indicate something had been purposely built near the center of Mound 1 at the Ross Hammock site. As our time and money were limited and our project exploratory in nature, we did no further work at this location once the evidence of structure was revealed. To properly investigate further would have involved many weeks of careful work.

A total of 947 pottery fragments was found in mound fill. These included 22 sand-tempered plain, 5 Dunns Creek Red, 2 St. Johns Cordmarked, 3 St. Johns Check Stamped, 11 St. Johns Simple Stamped, 2 St. Johns Incised (?), and 902 St. Johns Plain sherds. Both thick and thin St. Johns Plain pottery were present but thinner examples outnumbered thick ones. Three tetrapods, all of St. Johns paste, were in the collection. One exhibited simple stamping while the others were undecorated. Two sherds indicated the presence of pointed bases. The check-stamped fragments appeared to be copies in St. Johns paste of Deptford Check, Linear Check, and Bold Check (Pl, IV, *h*) Stamped sherds.

Examination of the proveniences of these specimens shows that sherds of all the types listed above except Dunns Creek Red were in the highest 5 feet of Mound 1. Between depths of 5 and 8 feet were 155 St. Johns Plain, 1 St. Johns Simple Stamped, and 2 sand-tempered plain sherds. In the black basal zone were 3 Dunns Creek Red, 1 St. Johns (Bold) Check Stamped, 1 St. Johns Incised (?), and 27 St. Johns Plain sherds. The Dunns Creek Red sherds exhibit only traces of red paint.

Associated with the horizontal deposit of fine crushed shell, mentioned earlier and considered as evidence of internal structure in Mound 1, were 7 St. Johns Plain and 2 Dunns Creek Red sherds. The last sherds differed from all other red-painted sherds from the site. The red paint seemed limited on both the outside and inside surfaces to a band extending downward about a half inch from the lip while, on the outside, the rim had been slightly thickened for a like distance. These sherds came from an extremely well- made, nicely finished vessel. It had a smooth surface and was constructed of a hard chalky or temperless paste.

It seems clear that this part of Mound 1 was built after the introduction of Dunns Creek Red pottery as all five sherds of this type found in the mound were in the lowest zones. The radiocarbon date from Midden Test II would suggest this introduction to

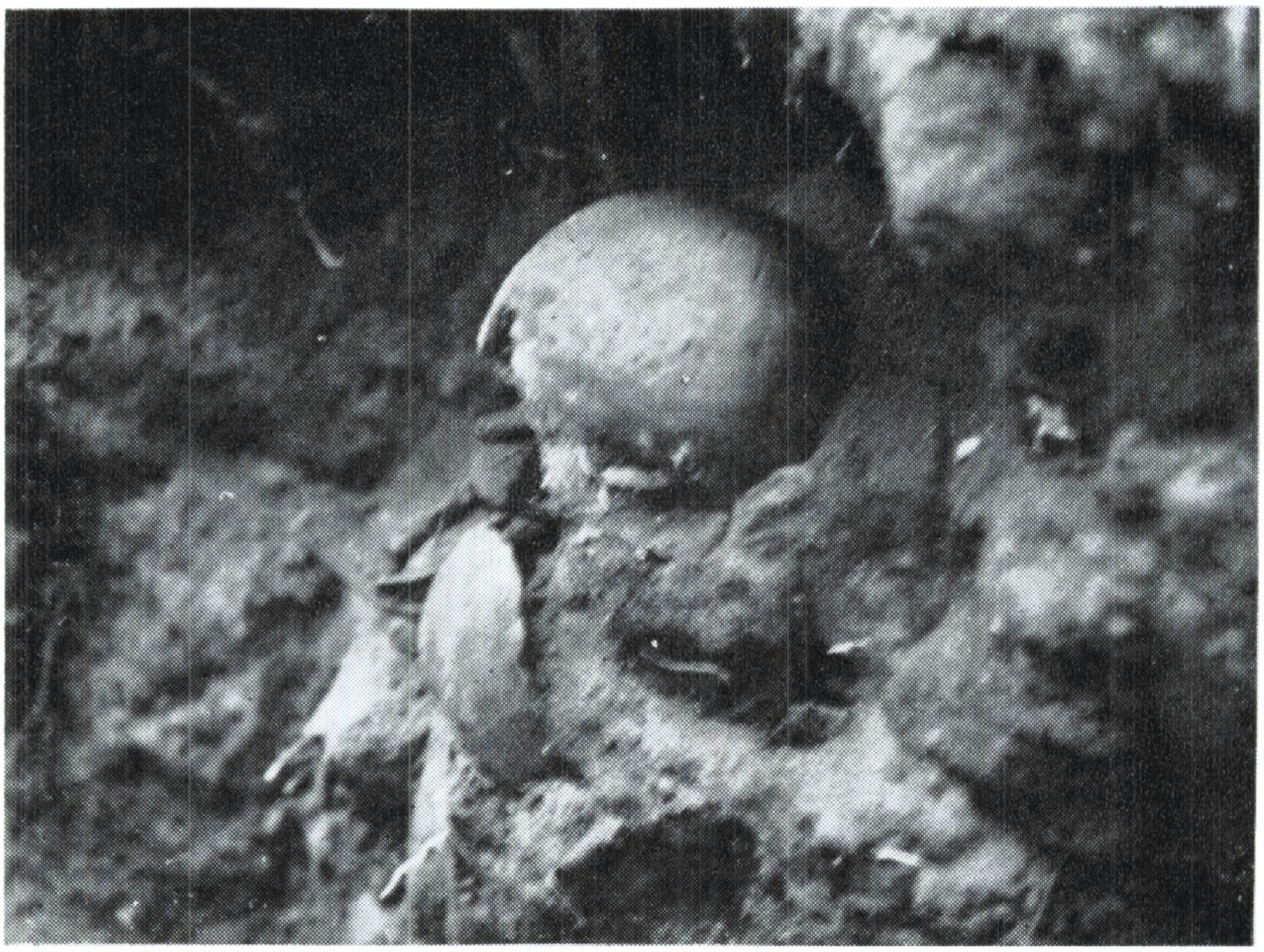

Plate V. Miniature vessels during excavation.

have occurred shortly after A.D. 270; hence, Mound 1 presumedly was started after that date. If this is the case, it would appear that tetrapodal vessels continued to be made at a much later date than we had previously supposed. On the other hand, the basal black zone at the location of Trench A, and the dirt above it, may represent an addition to an original burial mound centered more to the northwest. Future work at the mound and additional tests in the midden should resolve these questions.

Included in mound fill was an *Oliva* shell bead, a fragment of worked deer bone, and a broken *Busycon* shell tool. Unassociated with any specific burial was a well polished, apparently unused, 6-inch long, celt made of an imported fine-grained volcanic rock (Pl. VII, *c*). Such celts are commonly found in Weeden Island period burial mounds of the Florida Gulf Coast region.

One ceremonial deposit was discovered in the southwest part of Trench A (Fig. 4, *P*). It consisted of a miniature St. Johns Plain vessel placed upside down over a small, shallow, St. Johns Check

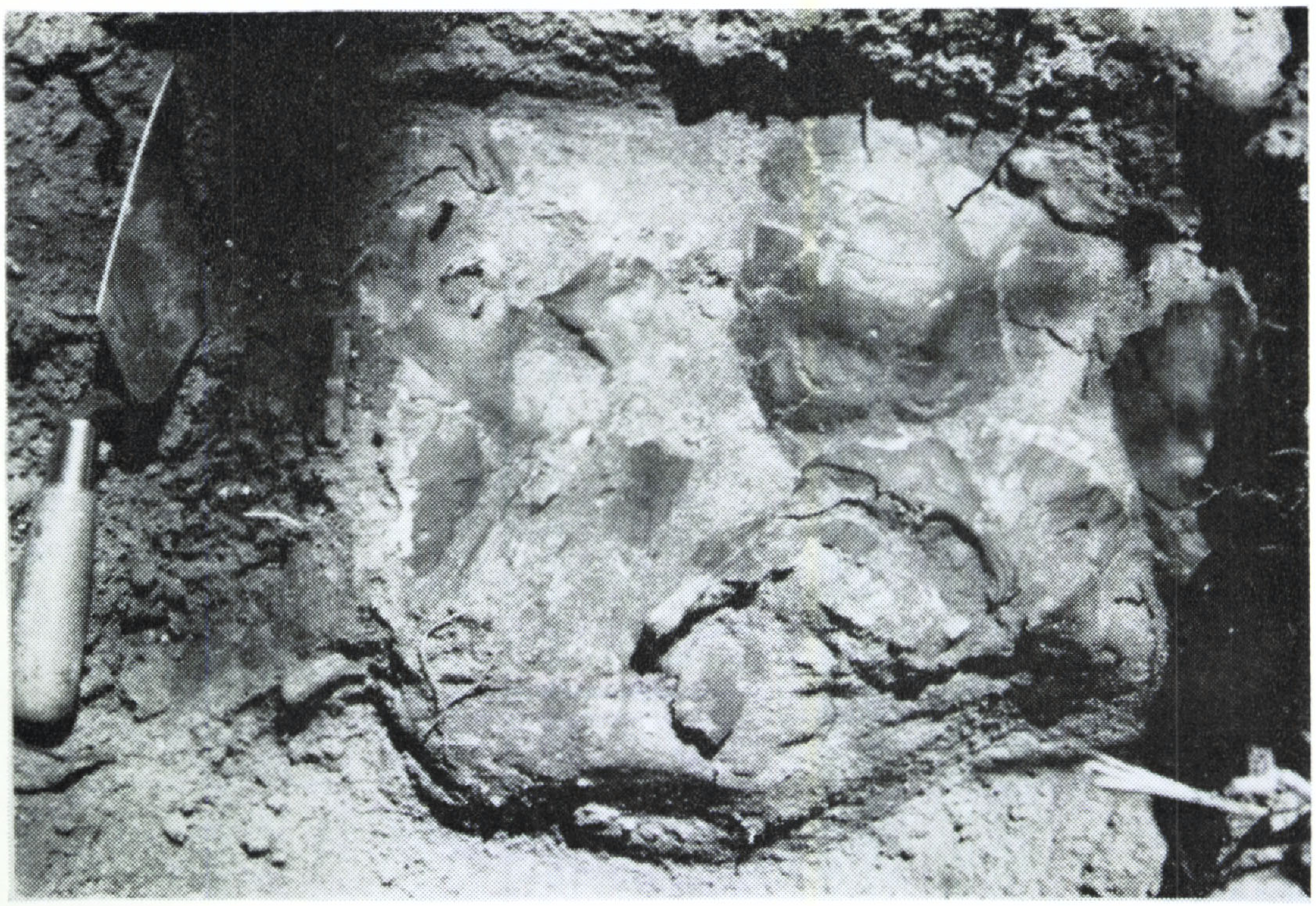

Plate VI. Four touching skulls, partially excavated.

Stamped bowl (Pl. VII, *a-b*). Inside were *Pteria colymbus* Roeding (Atlantic Wing) and *Tellina* sp. shells. Check imprints were not especially small, about 6 to the inch. These miniature containers were located while preparing the southeast profile of Trench A. The workman's shovel broke off a piece of the upper, plain vessel as shown in Plate V. Part of the lower check-stamped bowl may be seen behind the upper part of the displaced portion of the plain vessel. The superficial location of these containers suggest they were placed in Mound 1 very late in its history.

As shown in the profile (Fig. 4) burials were found in definite concentrations or in isolated random locations in Mound 1. Bones were in very poor condition with a few notable exceptions. Many skulls and long bones were crushed or flattened, presumedly by ground pressure; many were also eroded and pitted by ground water acids.

Some aboriginal disturbance and extreme intermingling of bones in multiple interments makes description difficult (Pl. VI). The highest four burials (Fig. 4) showed evidences of recent disturbance. Examination of the profile (Fig. 4) will indicate that the deepest burials were all in locations which suggested a possible association with the deep internal structures referred to previously.

Except for a pit burial below Stk. 15N and possibly a mass of bones below Stk. 10N, we noted no special treatment of interments. The majority of the burials were flexed. Detailed study of the skeletal material and comparison of whole bones and significant fragments from different structural levels of the mound will be covered in a subsequent publication.

Our work in Mound 1 included a small, 4- by 8-foot, test dug near the southeastern end of the mound. A few St. Johns Plain sherds and a scattering of *Venus* clam shells were found in mound fill but no other artifacts. This test suggested Mound 1 to have been built in two stages at that location. The highest zone, 36 inches thick, consisted of sand which was blackish in its upper part and dark brown in its lower half. This superior zone was separated from a lower dark brown sandy zone by a layer of yellow sand about an inch in thickness. Below a depth of 50 inches, this inferior zone became black-brown in color. At a depth of 80 inches we came down upon a basal, dark "swampy" or "humic" zone which was 8 inches thick. Below was sterile, medium-fine, white sand and, at 95 inches, water. The dark basal zone in this test was not black as in Trench A nor did it contain shells. It probably represented the original ground surface covered by an extension of the mound.

Discussion of Mound 1

Trench A was too small to give any definite or reasonably complete story about the construction of, or ceremonies held at, the main burial mound at the Ross Hammock site. However, there are suggestions presented on the profile (Fig. 4) which are worth considering.

It is believed the mottled zone, shown on the profile below Stks. 25 and 30N, represents the original surface. This surface was cut into, below Stks. 35N and 40N, and filled with black dirt and shell. Similar material was also deposited over the mottled zone where it was not removed. On the profile (Fig. 4) we considered this black dirt and shell deposit as a premound midden because

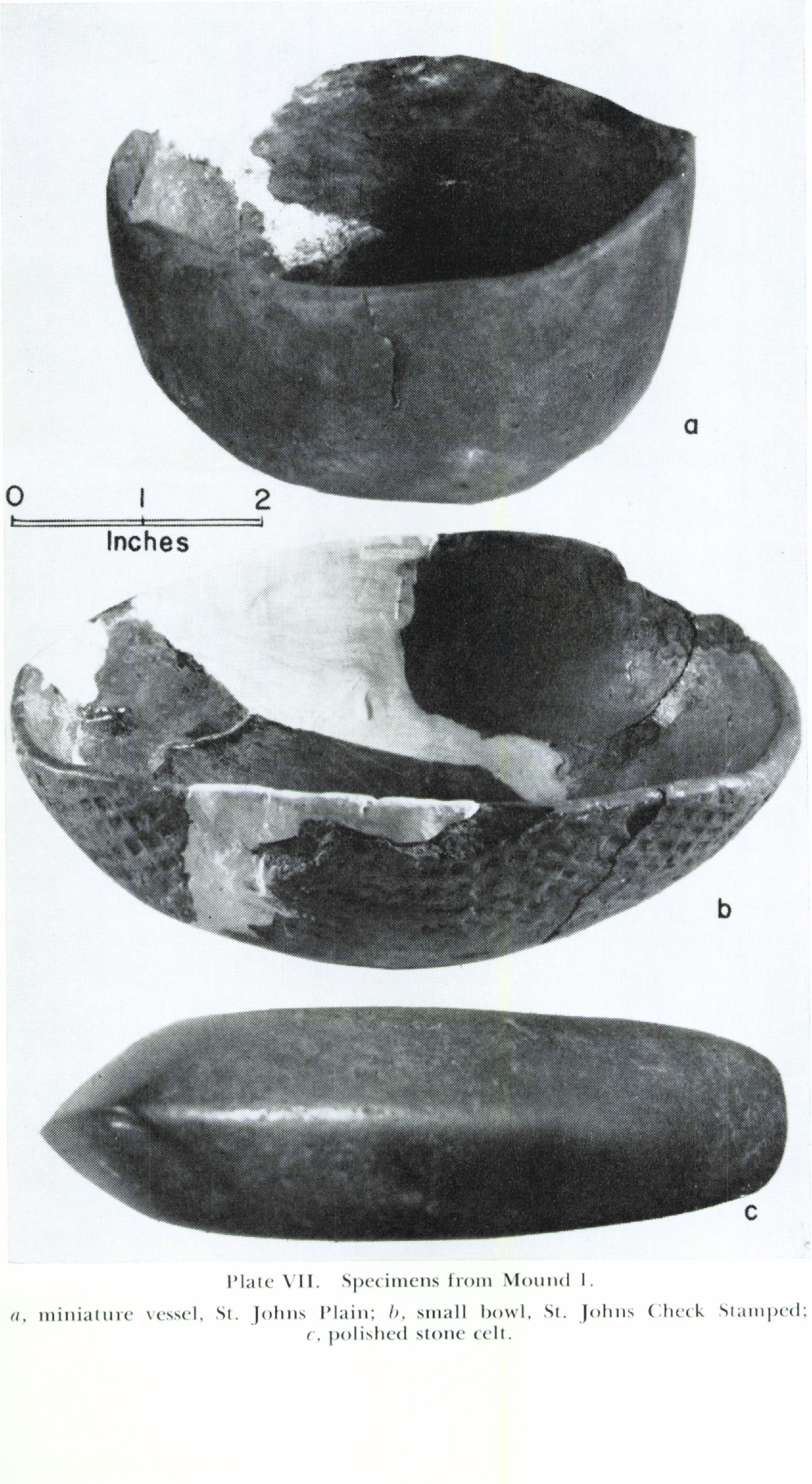
a
0
1
2
Inches
b
c

Plate VII. Specimens from Mound 1.

a, miniature vessel, St. Johns Plain; *b*, small bowl, St. Johns Check Stamped; *c*, polished stone celt.

of the fact that, towards the middle of Mound 1, it thickens and seems to divide into two layers. It is composed of midden material, beyond a doubt, but whether it represents a midden where people lived or represents midden material used as builders' fill is debatable. It is very reminescent of the charcoal impregnated basal zones found at the bases of Weeden Island period burial mounds near the Gulf Coast of Florida. There the surface humic zone was removed before the deposition of the charcoal impregnated basal layer. The removal of part of the mottled zone at Mound 1 suggests similar ceremonial construction.

If the basal black dirt and shell layer is builders' fill, the central thickening is part of the original design of this part of the mound. The horizontal crushed shell and clean sand layers below Stk. 10N and their overlying shell layer are very suggestive of a buried structure. If such is the case, the basal black dirt and shell layer may have been thickened towards the intended central core of the mound as support for this structure. The structure may have had an altar, crematory basin, or charnel house.

Associated with an early stage of mound construction are the deep burials between 13N and 19N. Shortly after their interment, the presumed structure and its associated burials were covered over by a blanket of shells as indicated by the shell layer extending from Stks. 10N to 25N. At the time the mound had a height of about 10 feet and was surrounded in this area by an apron about 5 feet in height. The continued addition of flexed burials, which were apparently placed on various surfaces and then covered over, gradually raised the mound to its present elevation. This must have occurred in stages over a fairly long time to account for the sloping zones or layers of shells, and of dark and light-colored sand shown in the profile (Fig. 4).

The very heavy concentration of burials below Stks. 7N to 15N, as well as the breaks in sloping soil lines in that area, suggest many of these interments were made at one time. They probably represent the clearing of a charnel house after the accumulation of a large number of bodies. The nearly horizontal "base" of these burials shows deposition on a fairly level sand floor. The mound may have been purposely leveled at that time or a large pit with a level bottom may have been dug from a higher elevation.

At least two phases in mound construction and use are indicated. The flexed burials, it would seem, must have been tied or wrapped in a flexed position shortly after death and deposited in a charnel house. The few bundle burials may merely represent bodies which had remained in the charnel house a very long time. The charnel house may have been located on another part of the burial mound or somewhere else.

Dating the construction and use of Mound 1 is difficult. As indicated earlier Deptford-like tetrapods were present in mound fill. However, dating must be made on the basis of the latest thing present which, presumedly, would be the Dunns Creek Red sherds in the basal black dirt and shell zone. Date of the introduction of this pottery type is, at present, not certain. Possibly Trench A did not penetrate the earliest part of Mound 1. It is evident the mound was built during the St. Johns I period but how early in terms of years must depend on future research.

Excavations at Mound 2

Excavations at Mound 2 were limited to small trenches dug to gain some idea of its importance and archaeological potentiality. Mound 2 was smaller than Mound 1 and, like it, surrounded by a large doughnut-shaped borrow pit. It appeared higher than it was because spoil thrown out from the treasure seeker's hole in its top had steepened the sides and raised them to an elevation probably higher than that of the original peak of the mound.

We dug six small tests at Mound 2. Trench A, 5 by 13 feet in area, started at a point about half way up the northern side of the mound and was carried downward to a depth of 90 inches. The top 24 inches consisted of dry, brown, medium-fine sand of which the top 6 inches had been leached to a whitish color. Below was a 6-inch thick zone of charcoal-flecked sand. Between depths of 30 and 63 inches was more brown sand. Light-colored sand at 42 to 48 inches divided this into an upper and a lower division. Other charcoal-flecked zones were found between depths of 63 to 69 and between 83 and 88 inches. Below and between these lower charcoal zones were deposits of light brown sand. This test established the artificial nature of Mound 2. No specimens were found except for an incomplete burial.

Trench B, 5 by 10 feet in size, was begun to the northwest at a higher elevation than Trench A. It produced 30 inches of clean brown sand of which the highest 6 inches was leached to a white color. Occasional chalky fragments of shells were encountered. This test was dug in what proved to be spoil from the treasure seeker's hole and was abandoned after the extreme thickness of this overburden was discovered.

Trench C, 3 by 4 feet, was dug downward from the bottom of the treasure seeker's hole in the top of Mound 2. It produced only an occasional *Venus* clam shell, a sand-tempered plain and four St. Johns Plain sherds. Trench D, 2 by 4 feet, penetrated 4 feet below the hole in another location. It was equally unproductive.

Trench E, 4 by 4 feet, was dug from a low elevation near the northeastern edge of the mound. This trench disclosed a basal dark zone about 6 inches above the current water table. One indistinct stamped and 22 St. Johns Plain sherds were in the highest 6 inches of the test. Transit levels disclosed that the basal dark zone was at an elevation 9 inches lower than the present top of the muck in the surrounding borrow pit. Apparently both Mounds 1 and 2 had specially deposited dark basal zones.

Test F, 4 by 6 feet, was at a higher elevation well to the northwest. It disclosed 39 to 40 inches of spoil from the treasure seeker's hole overlying a gray zone which we took to be the old (pre-treasure seeker) mound surface. In this test the spoil contained a few broken bones and fragments of shells. Here the original mound fill, which was dug into a distance of 24 to 30 inches, consisted of a sand and shell zone overlying one of sand and humic material. In the sand and shell zone were an Orange Plain and 16 St. Johns Plain sherds. In the lower sand and humic zone were an interior-incised sherd of St. Johns paste, a sand-tempered plain and a St. Johns Plain sherd.

Discussion of Mound 2

Variability in the deposits comprising Mound 2 are evident from these tests. That it was built as a burial mound is suggested by the fragmentary bones found at one place in the treasure seeker's spoil and one superficial interment produced by our work. Bone fragments found in the previous diggers' spoil suggest they may have dug through at least one burial in the lower central part of the mound, a location not penetrated by our tests.

Trees on Mound 2 were smaller than those on Mound 1, and the muck in the borrow pit surrounding Mound 2 supported a much less luxuriant growth than was the case with Mound 1. This suggests a much less developed humic situation with less available nitrogenous material and the likelihood Mound 2 was younger than Mound 1. The crowded burial situation at Mound 1 probably resulted in the construction of Mound 2, late in the history of the site, but it was not used very much after its original constructive phases.

Other Tests

To assure ourselves that Mound 2 correlated with the main midden northeast of Mound 1 and not with an unknown nearer midden, we investigated briefly the nearby terrain with negative results. As the point of land to the east of Mound 2 (Fig. 1, *B*) seemed a logical situation for such a site, we revisited that location where, on our previous visit, we had found no indications of Indian habitation.

This time we found small deposits of midden shell in two or three places. These scattered shell deposits were covered by 6 to 9 inches of sand and humic material. We found no sherds but our tests might be considered inconclusive in this respect. As the evidence of occupation seemed so minor, we believe Mound 2 was built by the inhabitants of the large midden northeast of Mound 1.

Historical Foundation

After completing our work at the Ross Hammock midden and burial mounds, we spent a day investigating the historical foundation located at the extreme northwestern end of the main midden (Fig. 1, *H*). Our work consisted of cleaning the walls, scraping the floor, collecting surface materials, and drawing a partial floor plan. We feel this work, while preliminary, should be recorded as it establishes the importance of this structure and may prove to be of some assistance to future workers.

A good impression of this foundation after clearing is given in Plate VIII. Main walls are oriented north-south and east-west.

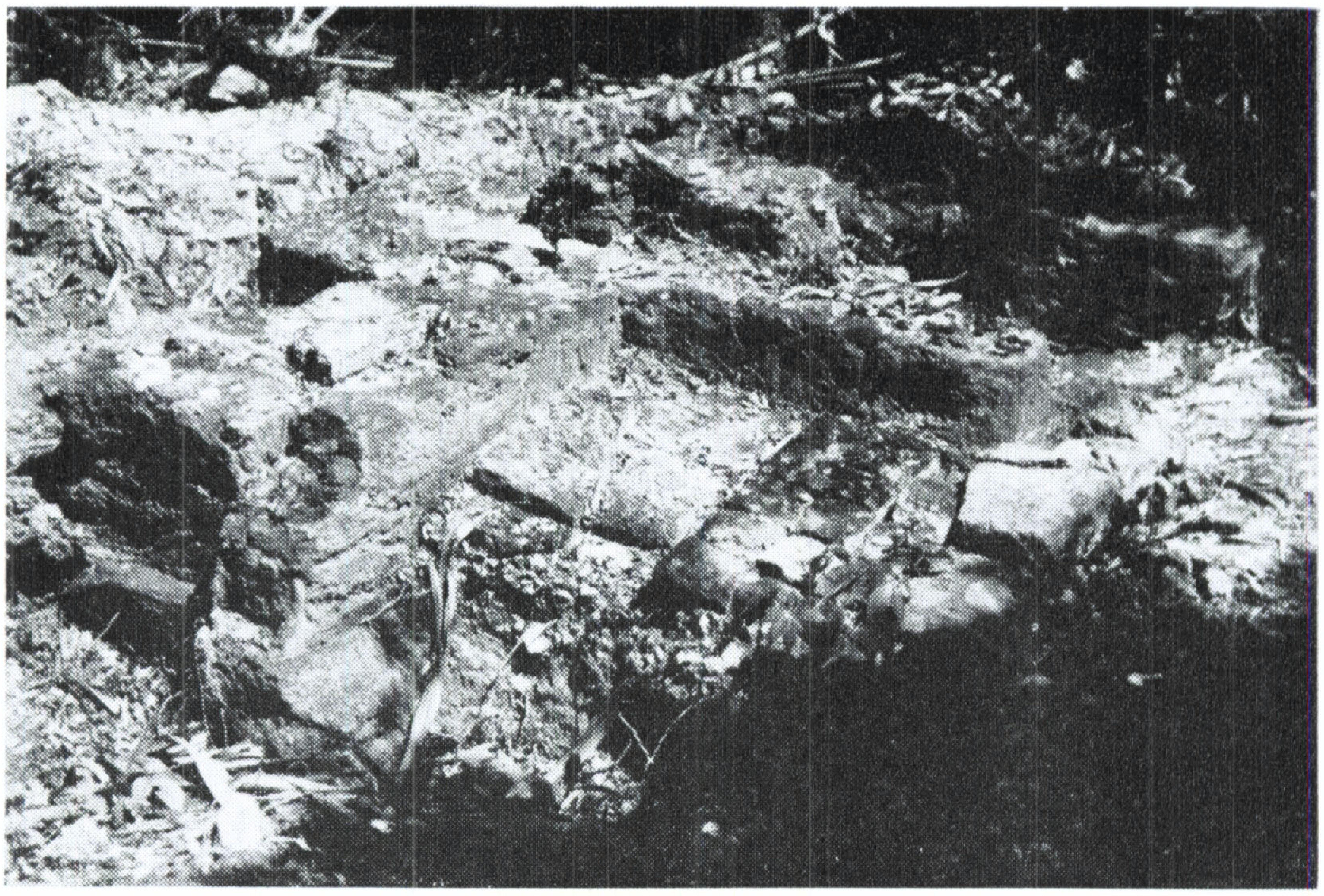

Plate VIII. Salt works foundation after clearing.

The basic construction is coquina cemented with cement made by burning shells. The remaining tops of the walls are 12 inches above the level of the hearth, shown in the center of the picture. The hearth is 6 inches higher than the surrounding floor. This floor, hardly visible in the picture, extended some 8 feet in front of and 15 feet south of the hearth. There was no evidence of a similar floor behind the foundation, i.e., to the north or east.

The walls are made of what appears to be a mixture of coquina, burnt shells, and cement. The hearth floor consists of coquina blocks and bricks set with cement. This floor was laid on fill taken from an adjoining part of the underlying Indian midden. The bricks are surrounded by the coquina slabs and probably represented repair work done because of failure of the coquina-like material to "stand up." These bricks were hand drawn. Some are yellow with iron inclusions and measure 4 by 8.5 by 2.25 inches, others are red and 4 by 9 by 2.25 inches in size. The floor around the foundation is cement over rubble.

Our surface collection includes remelted glass, strap iron, locally made hand-wrought or nineteenth-century nails and spikes, a Spanish olive jar fragment, and a Halifax Plain, 14 St. Johns Plain, and 6 St. Johns Check Stamped sherds. Check imprints are very fine. The Indian sherds, as well as the olive jar fragment, undoubtedly originated in or on the aboriginal midden. The nails and spikes are not like those found at Spanish missions.

These foundations are said by local residents to belong to a salt evaporation works used during the Civil War, sometime between 1861-65. Such plants were fairly common in Florida during that period when the State supplied most of the salt used by the Confederate Armies. The construction, associated artifacts, and location of this foundation all agree with the theory that it was an 1861-65 salt evaporation plant.

CONCLUSIONS

Excavations at the Ross Hammock site were made primarily to evaluate its archaeological potential. In this respect they were very successful. The data secured indicates the major occupation of the site ocurred during the little-known St. Johns I period. While deposits of late St. Johns I times have been penetrated several times by stratigraphic tests, this is the first time in recent years that deposits belonging to early phases of that period have been investigated.

The Ross Hammock site was first occupied during a Deptford-influenced phase of the St. Johns I period, probably around the time of Christ. The main burial mound, Mound 1, was probably started about the same time. Occupation continued throughout the various stages of the St. Johns I period as indicated by our radiocarbon date of A.D. 270 and the apparent relatively late introduction of Dunns Creek Red pottery.

During this long time, additional burials were periodically made in Mound 1 which finally became a large and imposing edifice. Eventually, apparently in very late St. Johns I times, Indians at Ross Hammock decided Mound 1 was too large or too crowded and built Mound 2 as a depository for future burials. Our tests indicate Mound 2 was not used to any great extent for burials after its initial construction.

St. Johns Check Stamped pottery in the highest level of the midden indicates Indians lived there during the St. Johns II period. As discussed earlier, the fine size of check imprints on this pottery suggests occupation during a late, as opposed to an early, part of the St. Johns II period. Such an hiatus is also suggested by the lack of burials in the upper parts of Mound 2. That Mound 1 was not entirely neglected during St. Johns II times is shown by the miniature St. Johns Check Stamped bowl found at a shallow depth in the southwestern part of Trench A.

The suggestions of internal structure which we found in the central part of Mound 1 are extremely intriguing. The earliest burial mound periods of Florida (Deptford or Santa Rosa-Swift Creek in western Florida and St. Johns Ia Late in northeastern Florida) have been correlated with the Adena-Hopewell aspects of the Ohio-Indiana region by archaeologists (Greenman 1938; Willey 1949a: 562-79; Goggin 1952: 49). At this time burial mound ceremonialism was very well developed in that area and altars, crematory pits, and special burial deposits were common in the north central part of the United States. Mound 1 at Ross Hammock is of the right time period to contain evidences of such influences from north of the Ohio River.

Both the midden and the main burial mound at Ross Hammock are potentially extremely important archaeologically. They should be carefully excavated to reveal their contained data and specimens. Their magnitude and importance dictate an extensive, large scale program which might take several field seasons. It is well the Ross Hammock site is on government land. It should be carefully protected against vandalism until proper steps can be taken to reveal its cultural story.

The salt works foundation, while possibly of limited popular appeal, is one of the few Civil-War-period structures to be found in Florida. It illustrates a most important phase of Florida's history and should be stabilized and preserved as an historical monument.

While the workmen were backfilling the midden tests, we briefly surveyed the region north of Ross Hammock. A large burial mound (Vo-120 or Vo-122, Goggin 1952: 95), about 20 feet high and 100 feet across, was located about 5 miles to the north. It was surrounded by a large borrow pit and a crater, about 30 feet in diameter, had been dug in its top. Along the shore, a short distance to the southeast, was a large village midden. This arrangement is analogous to that at the Ross Hammock site. Apparently there was a chain of these midden villages with extremely large associated burial mounds along the Indian River (previously Mosquito) Lagoon. These mounds have large treasure seeker's holes in their tops but they must still contain a vast amount of data regarding the ceremonial life of the early inhabitants of Volusia County, Florida.

It has been demonstrated in other parts of the country that careful and complete work at mounds excavated many years ago or at mounds more recently damaged by vandalism have produced extremely important data. The large burial mounds along the Indian River Lagoon in Volusia County, Florida, are less damaged than the mounds referred to in the previous sentence. It is fortunate some of these Florida mounds are still available for considered archaeological investigations using modern methods. The other burial mounds in the region should be given the same careful excavation recommended here for the Ross Hammock site.

REFERENCES CITED

BRYANT, WILLIAM J.

1965. *Old Indians at Cape Canaveral.* The Prairie Press. Iowa City.

BUTLER, AMOS W.

1917. "Observations on Some Shellmounds of the Eastern Coast of Florida." *Proceedings of the 19th International Congress of Americanists,* pp. 104-7. Washington.

BULLEN, RIPLEY P., AND FREDERICK W. SLEIGHT

1959. "Archaeological Investigations of the Castle Windy Midden, Florida." *The William L. Bryant Foundation, American Studies,* No. 1. Orlando.

1960. "Archaeological Investigations at Green Mound, Florida." *The William L. Bryant Foundation, American Studies,* No. 2. Orlando.

DOUGLAS, ANDREW E.

1885. "Some Characteristics of the Indian Earth and Shell Mounds on the Atlantic Coast of Florida." *American Antiquarian,* Vol. 7, pp. 74-82, 140-47. Chicago.

GOGGIN, JOHN M.

1952. "Space and Time Perspective in Northern St. Johns Archeology, Florida." *Yale University Publications in Anthropology,* No. 47. New Haven.

GREENMAN, E. F.

1938. "Hopewellian Traits in Florida." *American Antiquity,* Vol. 3, No. 4, pp. 327-32. Menasha.

JORDAN, DOUGLAS F.

1963. "The Jungerman Site." In "Papers on the Jungerman and Goodman Sites, Florida." *Contributions of the Florida State Museum, Social Sciences,* No. 10, pp. 1-23. Gainesville.

LE BARON, J. FRANCIS

1884. "Prehistoric Remains in Florida." *Smithsonian Institution, Annual Report* for 1882, pp. 771-90. Washington.

WILLEY, GORDON R.

1949a. "Archeology of the Florida Gulf Coast." *Smithsonian Miscellaneous Collections,* Vol. 113. Washington.

1949b. "Excavations in Southeast Florida." *Yale University Publications in Anthropology,* No. 42. New Haven.

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